

## REMARKS

Claims 13, 15-18, 20, and 21 are presently pending in the application.

Claims 14 and 19 have been canceled. Claims 13 and 17 have been amended to recite that  $R^1$  is hydrogen, which is supported, for example, in the  $R^1$  groups of the original formulae and claims and in the specification at least at page 61 (formula 31a) and page 62 (formula 32a). No new matter has been added by this amendment.

### Rejections Under 35 U.S.C. § 112

In Paper No. 8, the Examiner has rejected claims 13-21 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification. Specifically, the Examiner argues that  $R^6 = CH_2CH_2$  is not disclosed in the specification. Applicants respectfully traverse this rejection, because at least compound (32a), prepared in Synthesis Example 2 at pages 61-62 of the specification, contains  $R^6 = CH_2CH_2$ .

The Examiner has also rejected claims 17-21 under 35 U.S.C. § 112, second paragraph, as being indefinite, and argues that claim 17 should set forth that the composition contains gasoline. While not necessarily agreeing with this rejection, since the claim already recites “a gasoline composition,” claim 17 has been amended to positively recite gasoline as a component of the composition. Accordingly, reconsideration and withdrawal of the § 112 rejections are respectfully requested.

### Rejections Under 35 U.S.C. § 102(b) or (e)

The Examiner has rejected claims 13-21 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,193,767 of Arters, *et al.* (“Arters”). Claims 13-16 have been

rejected under § 102(b) as being anticipated by U.S. Patent No. 4,332,595 of Herbstman, *et al.* (“Herbstman”). Finally, claims 13-21 have been rejected under § 102(b) as being anticipated by U.S. Patent No. 4,604,103 of Campbell (“Campbell”). Applicants respectfully traverse these rejections and the arguments in support thereof for the reasons set forth below, and respectfully request reconsideration and withdrawal of the rejections.

*Rejection Under § 102(e) Based on Arters*

The Examiner argues that Arters teaches a gasoline composition comprising a polyetheramine of the formula  $R^2O(CH_2CH(R)O)_nR'NH_2$ , wherein  $R^2$  is a hydrocarbyl group of 1-50 carbons atoms, R is H or a hydrocarbyl group of 1-16 carbon atoms, R' is a hydrocarbylene containing 2-17 carbon atoms and n is 1-50. The compound is allegedly present in the composition in an amount from 50-1000 ppm, and thus allegedly anticipates claims 13-21. Applicants respectfully traverse this rejection as follows.

Claims 13 and 17 recite a nitrogen-containing compound in which the terminal group,  $R^1$ , is hydrogen. In contrast,  $R^2$  of Arters, which is allegedly equivalent to the claimed  $R^1$ , is limited to a hydrocarbyl group containing 1 to about 50 carbon atoms (column 8, lines 20-21). Arters does not teach or suggest that  $R^2$  can be hydrogen, and thus does not anticipate the claims. Consequently, reconsideration and withdrawal of the rejection are respectfully requested.

*Rejection Under § 102(b) Based on Herbstman*

The Examiner argues that Herbstman teaches a fuel composition comprising a polyetheramine of the formula  $R(OCH_2-CH_2)_x-(OCH_2CH(R^*))_y-NH_2$ , wherein R is alkyl of 1-20

carbon atoms, R\* is H or lower alkyl of 1-6 carbon atoms, x is 0-20, y is 0-10 and x + y = 1-30, and thus anticipates claims 13-16. Applicants respectfully traverse this rejection as follows.

The compound recited in claim 13 contains a hydrogen terminal group. In contrast, the terminal group of the polyetheramine of Herbstman, R, is limited to an alkyl group of 1-20 carbon atoms (col. 2, line 27). Herbstman does not teach or suggest that R can be hydrogen, and thus does not anticipate the claimed invention. Consequently, reconsideration and withdrawal of the rejection are respectfully requested.

*Rejection Under § 102(b) Based on Campbell*

The Examiner argues that Campbell teaches a gasoline composition comprising a polyetheramine of the formula  $R(OCH_2CH(R'))_xOCH_2CH_2N-R''R'''$  wherein R is a hydrocarbyl group of from 1 to about 30 carbon atoms, R<sup>1</sup> is H, methyl or ethyl, R'' and R''' are H; x is 1 to 30, and the compound is present in the composition in an amount from 30 to 10,000 ppm. The Examiner concludes that Campbell anticipates claims 13-21. Applicants respectfully traverse the rejection.

As described previously, the presently claimed compound contains a terminal hydrogen group. In contrast, the terminal group of Campbell, R, is limited to C1 to C30 aliphatic, olefinic or alkylaryl hydrocarbons (col. 5, lines 39-40). Campbell does not teach or suggest that R can be hydrogen, and thus does not anticipate the claimed invention. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

In view of the preceding Amendments and Remarks, Applicants respectfully submit that the pending claims are in compliance with § 112, patentably distinct from the prior art of record and in condition for allowance. A Notice of Allowance is respectfully requested.

Respectfully submitted,

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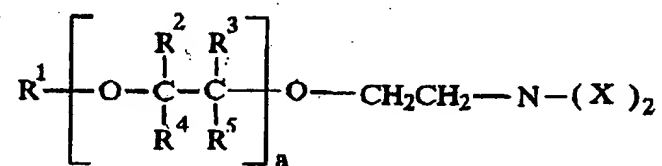
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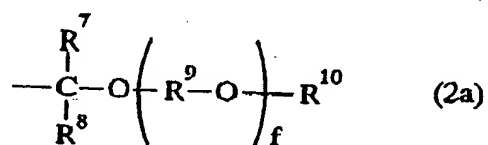
Enclosures: Marked-Up Version of Claims 13 and 17  
Request for Continued Examination (RCE)

**Marked-Up Version of Claims 13 and 17**

--13. (Amended) A gasoline additive for a direct injection gasoline engine which comprises a nitrogen-containing compound represented by the formula:



wherein  $R^1$  is [selected from the group consisting of] hydrogen [and a  $C_1$ - $C_{30}$  hydrocarbon group],  $R^2$ ,  $R^3$ ,  $R^4$  and  $R^5$  are each independently selected from the group consisting of hydrogen, a  $C_1$  -  $C_{16}$  hydrocarbon group and a group of the formula (2a) below,  $a$  is an integer from 1 to 200 and  $X$  is a group selected from Group B below, said formula (2a) being



wherein  $R^7$  and  $R^8$  are each independently selected from the group consisting of hydrogen, a  $C_1$  -  $C_{10}$  hydrocarbon group and a  $C_2$  -  $C_{10}$  alkoxyalkyl group,  $R^9$  is a  $C_2$  -  $C_6$  alkylene group or a  $C_4$  -  $C_{10}$  alkylene group having an alkoxyalkyl substituent,  $R^{10}$  is hydrogen or a  $C_1$  -  $C_{30}$  hydrocarbon group, and  $f$  is an integer from 0 to 50; said Group B being constituted by

(B1) hydrogen,

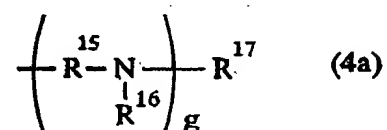
(B2) a C<sub>1</sub> - C<sub>30</sub> hydrocarbon group,

(B3) an alkanol group represented by the formula



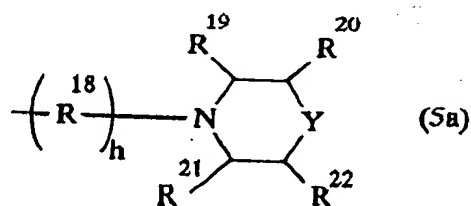
wherein R<sup>14</sup> is a C<sub>1</sub> - C<sub>6</sub> alkylene group,

(B4) a nitrogen-containing group represented by the formula



wherein R<sup>15</sup> is a C<sub>2</sub> - C<sub>6</sub> alkylene group, R<sup>16</sup> is selected from the group consisting of hydrogen, a C<sub>1</sub> - C<sub>4</sub> alkyl group, and a group of the formula (3a), R<sup>17</sup> is selected from the group consisting of hydrogen, a C<sub>1</sub> - C<sub>30</sub> hydrocarbon group and a group of the formula (3a), and g is an integer from 1 to 5, and

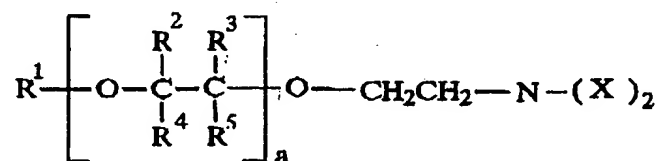
(B5) a group represented by the formula



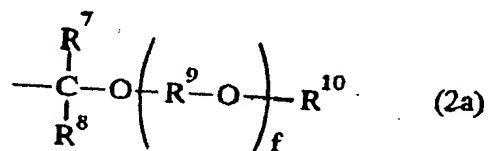
wherein R<sup>18</sup> is a C<sub>2</sub> - C<sub>6</sub> alkylene group, R<sup>19</sup>, R<sup>20</sup>, R<sup>21</sup>, and R<sup>22</sup> are each independently selected from the group consisting of hydrogen, a C<sub>1</sub> - C<sub>10</sub> hydrocarbon group and a hydroxyl group, Y is selected from the group consisting of a methylene group and a methylene group substituted by either a C<sub>1</sub> - C<sub>10</sub> hydrocarbon group, a hydroxyl group, an imino group, an imino

group substituted by a C<sub>1</sub> - C<sub>10</sub> hydrocarbon group or a hydroxy group, or oxygen, and h is equal to 0 or 1.

17. (Amended) A gasoline composition for use in a direct injection gasoline engine, which composition comprises gasoline and a nitrogen-containing compound represented by the formula:



wherein R<sup>1</sup> is [selected from the group consisting of] hydrogen [and a C<sub>1</sub>-C<sub>30</sub> hydrocarbon group], R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> and R<sup>5</sup> are each independently selected from the group consisting of hydrogen, a C<sub>1</sub> - C<sub>16</sub> hydrocarbon group and a group of the formula (2a) below, a is an integer from 1 to 200 and X is a group selected from Group B below, said formula (2a) being



wherein R<sup>7</sup> and R<sup>8</sup> are each independently selected from the group consisting of hydrogen, a C<sub>1</sub> - C<sub>10</sub> hydrocarbon group and a C<sub>2</sub> - C<sub>10</sub> alkoxyalkyl group, R<sup>9</sup> is a C<sub>2</sub> - C<sub>6</sub> alkylene group or a C<sub>4</sub> - C<sub>10</sub> alkylene group having an alkoxyalkyl substituent, R<sup>10</sup> is hydrogen or a C<sub>1</sub> - C<sub>30</sub> hydrocarbon group, and f is an integer from 0 to 50;

said Group B being constituted by

(B1) hydrogen,

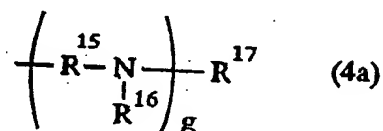
(B2) a C<sub>1</sub> - C<sub>30</sub> hydrocarbon group,

(B3) an alkanol group represented by the formula



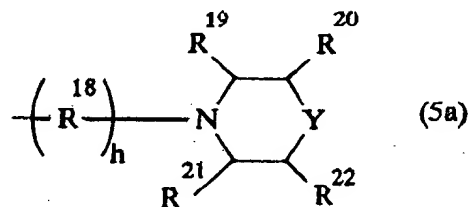
wherein R<sup>14</sup> is a C<sub>1</sub> - C<sub>6</sub> alkylene group,

(B4) a nitrogen-containing group represented by the formula



wherein R<sup>15</sup> is a C<sub>2</sub> - C<sub>6</sub> alkylene group, R<sup>16</sup> is selected from the group consisting of hydrogen, a C<sub>1</sub> - C<sub>4</sub> alkyl group, and a group of the formula (3a), R<sup>17</sup> is selected from the group consisting of hydrogen, a C<sub>1</sub> - C<sub>30</sub> hydrocarbon group and a group of the formula (3a), and g is an integer from 1 to 5, and

(B5) a group represented by the formula



wherein R<sup>18</sup> is a C<sub>2</sub> - C<sub>6</sub> alkylene group, R<sup>19</sup>, R<sup>20</sup>, R<sup>21</sup>, and R<sup>22</sup> are each independently selected from the group consisting of hydrogen, a C<sub>1</sub> - C<sub>10</sub> hydrocarbon group and a hydroxyl group, Y is selected from the group consisting of a methylene group and a methylene group



substituted by either a  $C_1 - C_{10}$  hydrocarbon group, a hydroxyl group, an imino group, an imino group substituted by a  $C_1 - C_{10}$  hydrocarbon group or a hydroxy group, or oxygen, and h is equal to 0 or 1.--